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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/792,271	03/04/2004	Martinus Agnes Willem Cuijpers	081468-0308590	4234
909	7590	08/14/2006	EXAMINER	
PILLSBURY WINTHROP SHAW PITTMAN, LLP			PRESTON, ERIK D	
P.O. BOX 10500			ART UNIT	
MCLEAN, VA 22102			PAPER NUMBER	

2834

DATE MAILED: 08/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/792,271	<b>Applicant(s)</b> CUIJPERS, MARTINUS AGNES WILLEM	
	<b>Examiner</b> Erik D. Preston	<b>Art Unit</b> 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5 and 7-25 is/are pending in the application.
- 4a) Of the above claim(s) 17,18,24 and 25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,7-16 and 19-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1,2,4,6-16,19 & 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Chitayat (US 4985651 previously cited).

With respect to claims 1,19 & 20, Chitayat teaches a system for carrying and moving an object in a plane comprising: An object carrier (Fig. 1, #36); a first and second linear actuator (Fig. 1, 32 & 34 respectively, and of the same construction as the linear motor depicted in Fig. 2, #20 [Col. 5, Line 62-Col. 6, Line 12]) configured to support said object carrier and move said object carrier in a first direction (Y-axis), said first and second linear actuators being electromagnetic linear actuators comprising: a magnetic structure (Fig. 2, #23) and a coil structure (Fig. 2, #54), wherein the coil structure and the magnetic structure are positioned relative to each other and separated by an air bearing (Fig. 2, #50 & 52) that is adapted to support said object carrier; a third and fourth linear actuator (Fig. 1, #20 & 22 respectively) configured to move said object carrier in a second direction (X-axis), said third and fourth linear actuators extending in parallel along said second direction (as seen in Fig. 1). It is also noted that the requirement of the air bearing being "adapted to" support the object carrier is given little patentable weight since it has been held that the recitation that an element is "adapted to" perform a function is not a positive limitation but only requires the ability to so

perform. It does not constitute a limitation in any patentable sense (In re Hutchinson, 69 USPQ 138 (CCPA 1946)).

With respect to claim 2, Chitayat teaches the system of claim 1, wherein said third and fourth linear actuators support said first and second linear actuators.

With respect to claim 4, Chitayat teaches the system of claim 2, wherein said third and fourth linear actuators each comprise an air bearing to support said first and second linear actuators (as seen in Fig. 2).

With respect to claim 9, Chitayat teaches the system of claim 1, wherein said object carrier is positioned relative to said first and second linear actuators such that a vertical line running through a center of gravity of said object carrier is located between said first and second linear actuators (as seen in Fig. 1).

With respect to claim 10, Chitayat teaches the system of claim 2, wherein said first and second actuators are positioned relative to said third and fourth linear actuators such that a common center of gravity of said first and second linear actuators is positioned between said third and fourth linear actuators (as seen in Fig. 1).

With respect to claim 11, Chitayat teaches the system of claim 1 wherein said first and second actuators are substantially symmetrically positioned with respect to the center of gravity of said object carrier (as seen in Fig. 1).

With respect to claim 12, Chitayat teaches the system of claim 1, wherein said third and fourth actuators are substantially symmetrically positioned with respect to the common center of gravity of the first and second linear actuators (as seen in Fig. 1).

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With respect to claim 13, Chitayat teaches the system of claim 1, wherein said first and second linear actuators are positioned at opposite ends of the object carrier (as seen in Fig. 1).

With respect to claim 14, Chitayat teaches the system of claim 2, wherein said third and fourth linear actuators are positioned at opposite ends of said first and second linear actuators (as seen in Fig. 1).

With respect to claim 15, Chitayat teaches the system of claim 1, wherein said second direction is perpendicular to said first direction (as seen in Fig. 1).

With respect to claim 16, Chitayat teaches the system of claim 1, further comprising a control system configured to control said first and second linear actuators (Col. 6, Lines 13-18).

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 5, 7 & 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chitayat (US 4985651 previously cited) in view of Chitayat (US 5519266 previously cited).

With respect to claims 5 & 7, Chitayat ('651) teaches the system of claims 1 & 2, wherein the relative positioning of the coil structure and the magnetic structure of the four linear actuators is configured such that the row of magnetic poles is positioned opposing the teeth, the coil structure and the magnetic structure being separated by an air bearing, but it does not teach the specifics of the components of the linear actuators.

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However, Chitayat ('266) teaches linear actuators comprising: A magnetic structure (Fig. 3, #54) having a row of alternating magnetic poles on an outer surface thereof, said row being oriented in said first direction; and a coil structure (Fig. 3, #45) having an iron core (Fig. 3, #44) with a number of teeth in a row orientated in said first direction and having a number of coils wound around a respective number of said teeth. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the linear actuators of Chitayat ('651) in view of the linear actuator as taught by Chitayat ('266) because it provides a dynamoelectric actuator similar to the type as is taught by Chitayat ('651) that provides many benefits not present in conventional linear actuators (Chitayat ('266), Col. 2, Lines 34-67).

With respect to claim 8, Chitayat ('651) in view of Chitayat ('266) teaches the system of claim 7, and Chitayat ('651) teaches that said air bearing for separating the coil structure and the magnetic structure supports said first and second linear actuators (as seen in Fig. 2).

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chitayat (US 4985651 previously cited) in view of Kyomansu et al. (US 6727666 previously cited). Chitayat teaches the method of claim 20, where a control system is used to control said first and second actuators to move said object carrier in the first direction, but it does not teach the specifics of this control system. However, Kyomansu teaches a control system comprising: inputting a set position in a control system; determining an actual position of said object carrier; inputting the actual position in said control system; determining a control signal suitable to move said object carrier from said actual

position to said set position; and feeding said control signal to said linear motor (Col. 5, Lines 14-23). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the control system of Chitayat in view of the Control system as taught by Kyomansu because it provides a means for achieving a grater detection precision (Kyomansu, Col. 2, Lines 57-65).

Claims 22 & 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chitayat (US 4985651 previously cited) in view of Kyomansu et al. (US 6727666 previously cited) further in view of Kwan et al. (US 6635887 previously cited). Chitayat in view of Kyomansu teaches the method of claim 21, but it does not teach determining a position and applying a control signal individually to each a plurality of linear actuators. However, Kwan teaches a linear actuator control that comprises: determining an actual position of a plurality of linear actuators, determining from said actual position of each linear motor whether the plurality of linear actuators are moving synchronously, and applying a control signal to compensate for any asynchronous movement on the part of the plurality of actuators (Col. 7, Lines 11-25). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the control system of Chitayat in view of the control system as taught by Kwan because it provides a means for moving an object carrier in three degrees of freedom (Kwon, Abstract).

### ***Response to Arguments***

Applicant's arguments filed 5/17/2006 have been fully considered but they are not persuasive.

In response to the applicant's argument that Chitayat does not teach a magnetic structure and a coil structure that are separated by an air bearing that is adapted to support said object carrier, it is noted that (as can be seen in Fig. 2) the separation between the coil structure and the magnetic structure is facilitated solely by an air bearing. It is also noted that the relationship between the third actuator (Fig. 2, #20) and the magnetic array for the first actuator (Fig. 2, #39) is equivalent to the relationship between the first actuator (Fig. 1, #32) and the object carrier (Fig. 1, #36), all of these elements being supported by air bearings of the type as seen in Fig. 2.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erik D. Preston whose telephone number is (571)272-8393. The examiner can normally be reached on Monday through Friday 8-5.



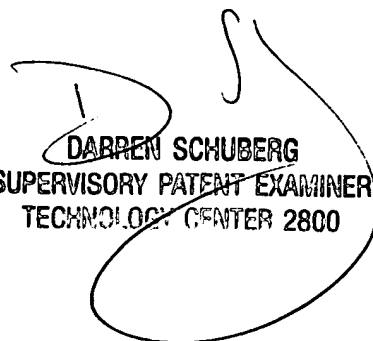
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



07/26/2006



DARREN SCHUBERG  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800